Vol xxvi

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A REPORT

UPON THE

Public Health of the Borough and Port of Great Yarmouth,

FOR THE YEAR 1889,

COMPRISING SOME PARTICULARS OF

POPULATION, VITAL STATISTICS, CAUSES OF DEATH AND LOCALITIES OF ZYMOTICS;

TOGETHER WITH

The Numbers and Characters of the various Nuisances abated, and a short account of the more

IMPORTANT SANITARY MATTERS,

DEALT WITH BY THE U. & P.S.A. BY

JOHN BATELY, M.D., L.R.C.P., LOND., &c.

Medical Officer of Health and Medical Superintendent of the Urban Sanitary Authority's Infectious Diseases Hospital.

:o:

PRINTED BY ORDER OF THE SANITARY COMMITTEE OF THE CORPORATION.

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Great Yarmouth:
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1890.

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England & Wales during 1889.

Population estimated to the middle of the year,	29,015,613
Registered Births	885,160
Registered Deaths	517,936
Annual rate of Births per 1,000 of the population	30·5
,, Deaths ,, ,,	17·9
Excess of Births or Deaths	367,224
Estimated increase of population ...	389,423
Emigrants—English and Welsh ...	167,820

The death-rates which in the eight preceding years had ranged from 19·6 in 1882 to 17·8 in 1888 (the rate in 1888 being considerably below the rate recorded in any previous year of civil registration), was 17·9 in 1889. The recorded death-rate in each of the nine years 1881-89 was lower than the rate recorded in any year prior to 1881. The mean annual death-rate in the first nine years of the current decennium (1881-89) did not exceed 18·9 per 1000, and was no less than 2·5 below the mean rate in the preceding ten years, 1871-80. This marked decline in the death-rate implies that more than 600,000 persons in England and Wales were alive at the end of last year, whose deaths would have been recorded during the nine years, 1881-89, had the rate of mortality equalled that which prevailed during the ten years, 1871-80.

Registrar General's Report.

31st January, 1890.

REPORT.

To the Great Yarmouth Urban Sanitary
Authority.

Gentlemen,

I respectfully submit for your consideration the following report upon the health of this Borough during the year 1889.

I estimate the Population as numbering 49,833 at the middle of the year, and 50,052 at its close. As I have before pointed out the further removed we are from the last census taking, the less reliance can be placed upon estimated populations. But believing the increase which took place between 1871 and 1881 is being maintained at a similar rate during this decennium, the above estimates may be taken as approximatively correct.

There were registered within the Borough during the fifty-two weeks ending with December 28th, 1889—

1,597 Births and 875 Deaths.

These figures applied to the estimated population for the middle of last year give the

Birth Rate as 32·04 per 1000.
Death Rate as 17·55 per 1000.

INFANT MORTALITY—Deaths under one year per 1000 to Births registered—155·9.

Of all the births 6·3 per cent. were illegitimate. The unfortunate circumstance in connexion with this matter, as far as we are concerned, is the rate at which these infants die. During last year, infants under a twelvemonth and born in wedlock, died at the rate of 14 per cent. of those born; while those of illegitimate birth, died at the rate of 26 per cent., thus indicating the chances of survival as nearly twice as great in favour of those of legitimate birth. Surely this mortality tells us pretty plainly that these infants suffer from more ills than flesh is heir to, and to lessen these ultra-pathalogical deaths is undoubtedly a social problem of some difficulty. It seems to me, however, quite possible to do something in that direction by requiring the place of abode, and the name of the mother or person having the custody of the infant, to be registered and some official visitation arranged for.

The death rates in the three registration districts within the Borough were as follows :—

20·00 per 1,000 in the Northern District.
16·91 ,, ,, Southern ,,
13·81 ,, ,, Gorleston & Southtown.

The Northern district nearly maintains its death rate of last year, but in each of the others a considerable reduction has taken place. At the Workhouse in the Northern district there were 74 deaths. At the Public Hospital and the Royal Naval Asylum, in the Southern district, there were 18 and 9 deaths respectively, and sprinkled throughout the Borough there were 17 deaths of visitors and strangers.

The table on pages 20 and 21, is in accordance with the Local Government Board's direction, and exhibits many particulars as to ages and causes of death within your Sanitary district during 1889. I have supplemented it by giving the totals of like particulars for several years past, so that comparison of the various years may be made.

The total number of deaths referred last year to the principal *Zymotic* diseases amounted to 106, which I calculate as equivalent to a mortality of 2·12 per 1,000 persons living. These figures, with the chief of those given on previous pages, I here tabulate so as to bring them into contrast with the averages of the ten years last past. It is gratifying to note that last year's gross death-rate was below the average.

	Births.	Rate.	Deaths.	Rate.	Zymotic Deaths.	Rate.
During 1889	1597	32·04	875	17·55	106	2·12
Average of ten years, 1879-88	1600	33·26	954	19·83	123	2·54

It would be exceedingly interesting to know how the above figures compare with the like particulars of other towns of similar size to Yarmouth, but as the Registrar General has lost faith in "estimates of population in small communities," so far away from the census year, and discarded them, I very much regret I am unable to compile such a table. Possibly, however, the following figures I have worked out from the Registrar-General's quarterly returns, and the returns made to me by the Registrars of the sub-districts within this Borough, may afford you some information as to how our death-rates compare with the national rates and those of several large groups of districts. Nevertheless, I should have been glad to have laid before you the individual vital statistics of towns believed to be about equally populous to Yarmouth.

Annual Death-rates per 1000 from all Causes and from several Zymotic Diseases, during 1889.

	All Causes.	Principl. Zymotic Diseas.	Small-pox.	Measles	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.
England and Wales	17·9	2·10	0·00	0·49	0·22	0·18	0·39	0·18	0·60
28 Great Towns	19·2	2·72	0·00	0·66	0·29	0·25	0·48	0·19	0·83
50 other Town distcs. (including Yarmouth)	18·7	2·35	0·00	0·62	0·23	0·17	0·43	0·20	0·73
England & Wales, less the 78 Towns	16·9	1·69	0·00	0·37	0·18	0·15	0·34	0·17	0·21
Yarmouth (alone)	17·55	2·12	0·00	0·40	0·00	0·04	0·02	0·50	1·16

The first line of figures relates to England and Wales as a whole, *i.e.*, all urban and rural districts massed together; the second line relates to London and the great centres of trade and commerce, wherein the conditions of health, in the aggregate, are generally considered most unfavourable; the third line relates to the large urban districts, while the fourth line relates to all the small towns and the rural districts in which the conditions of life are most favourable. The fifth line, relating to Yarmouth alone, is, as I have explained above, from my own data, and the significant feature in it, is, that while the total local death-rate is slightly below the national one, that derived from ZYMOTIC DEATHS only, is somewhat in excess. This is accounted for by the heavy death rates Fever and Diarrhœa give rise to, which are far beyond any above them.

Last year I had something to tell you of the introduction of SMALL-POX from the Fishing Smacks at Sea. This year I can report a perfect immunity from this disease. I can also say the same in respect to SCARLATINA, at least as far as deaths are concerned. Of MEASLES, however, there were twenty deaths, occurring mostly in the winter and spring months. Young Children being very prone to suffer with this disease, it is therefore a very difficult one for sanitary efforts to cope with, the majority of the cases being too infantile to isolate. The inclemency or otherwise of the weather has a great deal to do with the mortality this disease gives rise to; Bronchitis, its usual concomitant, frequently taking fatal form upon the little patient "catching cold." Of DIPHTHERIA, CROUP and WHOOPING COUGH, in all eight deaths resulted, and this is the smallest mortality I have recorded for many years past. But by far the most important of the zymotic deaths were those from TYPHOID FEVER, for with this disease many adults succumb. Of the twenty-five deaths from this cause last year, only four were those of young children under five years of age, or, to be more precise, I may say there were five in each decade of life up to thirty years; eight between thirty and forty, and one in each of the two decades immediately beyond. A more serious blot upon any town's bill of health than typhoid fever, it is impossible to have. From the commencement of my records of this borough's mortality in 1874 to the present time, typhoid has every year appeared amongst the causes of death; to a much larger extent in some years than others, but no year has yet gone bye without it claiming a few victims. In 1879 the deaths from this cause were as few as six, but in 1885 they numbered forty-four. The disease is evidently well rooted here, and several times during the last fifteen years, it has assumed epidemic form. During those years you have effected immense improvement in the general sanitary state of the town, and yet the influences whereby this disease is kept alive in our midst, continue. Last year a few cases occurred in the early months, but it was in the autumn the disease became epidemic, and very fatal. You will remember the atmosphere from October to the end of January of the present year was, with very few intermissions, a thick haze, very much laden with moisture. And with this saturated condition of the air there was a remarkable absence of wind, so that in those localities where, from any cause whatever, offensive effluvia arose, the scent did not disperse, as it would have done in a clear stirring atmosphere, but hung about the neighbourhood, annoying those living in it or passing through it. It has been suggested that some of this scent might have resulted from watering the roads a few months before, during the dry summer-time with sea water. I certainly cannot assent to this suggestion ; for, many years before the Ormesby water was ever used upon the roads, they were watered with salt water pumped up near the river, and no valid reason has ever yet been offered against its use for watering roads, or flushing sewers. In my opinion these are two of the best possible uses you can put the sea water to, and I am further of opinion that it would have been a great convenience to the public, to say the least of it, had the sea water been freely used last autumn, to wash off the filthy adhesive mud that everywhere bemired our foot pavements. The dampness of our paths and roads could not be avoided, I know, but considerations of public health and comfort should have ensured the constant removal of the mud, such dampness was ever giving rise to. But even had the general dampness of last autumn anything to do with the typhoid fatality of that period, it will not explain its perennial occurrence. It seems quite possible for unwholesome conditions to so environ an individual as to bring about typhoid, and sporadic cases are cited as examples, but where a shoal of cases occur as they did in this Borough last autumn, with an antecedent yearly recurrence, the disease cannot in all instances have arisen *de novo*. Something more constant and potent for harm is with us, than the conditions above mentioned, to account for the permanence of the scourge.

There are an increasing number of people in this town, whose opinions are entitled to respect, and who knowing of the pollutions the source whence the Water Company draw their supply, is liable to, look with grave suspicions upon the innocence of the filtered article as supplied to the public. Not that the water itself gives rise to the fever, for the immunity the inmates of the Workhouse, as far as my mortality records show, have always enjoyed, seems to indicate that in the presence of good sanitation no harm arises from it being freely drank of; but do the Company render the water so absolutely pure that it cannot encourage any morbific process in the human system whatever? Upon this question scientific opinion is much divided. We are told by eminent analysts that the water "is decidedly among the suspected ones" and "of doubtful purity," while others, equally eminent are of the contrary opinion, the latest among these, Dr. Dupré, says "it shows no indication of sewage or other animal pollutions, and is in most respects admirably adapted for a public water supply." Where science leads to such opposite opinions, and consequently much bewilderment of the public mind, the majority of people will rely upon their own common sense for the conclusion they arrive at. Many Sanitarians of to-day decline to believe a chemical analysis establishes the purity of any water, especially that in which ingredients are found needing scientific explanation. Such an analysis seems to indicate the opposite; it shows the water to contain certain questionable matter, which, if the water were pure, would not be there at all. The following extracts from the report of the Medical Officer of the Local Government Board for 1881, teaches so plainly the rational estimate which should attach to a certificate of analysis, that I am sure you will peruse them with profit. Dr. Buchanan says:—

"The Medical Department has had repeated occasion to observe, on the part of sanitary authorities and their advisers, a tendency to estimate unduly the value of quantitative chemical analyses as demonstrating the wholesomeness of drinking waters. Some authorities have even regarded evidence of this sort as setting aside presumptions of pollution that had arisen from considerations of dangerous situation of wells and reservoirs.

"The refined methods of water analysis that are now in use are capable of detecting very minute quantities of organic impurity in large volumes of water. They enable a total amount to be stated, and from some of them, moreover, inferences can be drawn as to the proportion of such impurity that is of animal origin.

"Now there is nothing in the nature of things that constitutes a grain or a fraction of a grain of organic matter, vegetable or animal, into an indication of wholesomeness or unwholesomeness, because it occurs in a gallon of water. It is because we have a previous knowledge of where the organic matter of water is likely to have come from, that we want to have our drinking waters as free as possible from all such matter, and particularly from all that is of animal origin. We know that excrement and such nastiness is the usual source of the animal matters discovered in our drinking waters.

"And just as this previous knowledge has always lain at the very basis of our care about organic purity of water, so with advance of our knowledge we have learnt that among animal impurities of a nasty kind, one differs very much from another in its power to give a morbific quality to water. We have come to be especially desirous of avoiding such impurity, if any part of it can have been derived from the bodies of persons suffering under communicable disease.

"If we could be sure that waste products, contaminating water, were by no possibility derivable from any but healthy bodies, we might perhaps run no very serious risk if our water were as foul as that of the Holy Well of Mecca,—stuff saline with urine and yielding to analysis 'nearly six times as much animal matter as is found in the same volume of strong London Sewage.' But with the introduction of the idea of specific disease the conditions are totally changed. We do not know how small a quantity of material that has been in relation with such disease may, when it gains admission to a healthy body, suffice to produce like disease in that body. We have no reason for believing that the quantity of disease-producing material in a water, or the likelihood of the water possessing harmful qualities, is proportionate to the total organic matter, or to the total animal matter present in the water. The utmost we have been able to say is that there has been greater opportunity for the entrance of the material of disease into water that can be recognised by the chemist as foul with organic matter, and we have surmised that the material of disease on entering such water may obtain opportunity of sustaining or multiplying itself."

Dr. Buchanan then goes into some detail respecting the careful experiments conducted by Drs. Cory and Duprè, at the instigation of the Local Government Board, which prove clearly that chemistry cannot tell whether a healthy or a diseased body has been the source of any excremental pollution of any particular water. Many of Dr. Cory's observations had special reference to experimental contamination of different waters, some with healthy stools and some with the stools of enteric fever patients, and the results not only gave no indication as to whether the polluting matter came from a healthy or a diseased body, but failed to indicate the presence of an amount of specifically polluting matter which must have been far in excess of that which proved so disastrous in the well-known Caterham epidemic. The lessons which may be learned from this enquiry are so ably summed up by Dr. Buchanan that I quote his words,—" While we must ever be on the watch for the indications that chemistry affords of contaminating matters gaining access to our waters, we must (at any rate until other methods of recognition are discovered), go beyond the laboratory for evidence of any drinking water being free from dangerous organic pollution. Unless the chemist is well acquainted with the origin and liabilities of the water he is examining, he is not justified in speaking of a water as 'safe' or 'wholesome,' if it contain any trace whatever of organic matter; hardly indeed even if it contain absolutely none of such matter appreciable by his very delicate methods. The chemist can, in brief, tell us of impurity and hazard, but not of purity and safety. For information about these we must go, with the aid of what the chemist has been able to teach us, in search of the conditions surrounding water sources and affecting water services."

DIARRHŒA, which is credited with fifty-eight deaths, is in this town the peculiar foe of infantile life, and is a malady much dependent upon the unwholesome conditions the little patients are subject to. Dr Ballard, of the Local Government Board, has been studying for some years the problem of the causation of Diarrhœa in Yarmouth among other places, and in a recent provisional Report he summarises the very many conditions he found influencing the infant diarrhœal mortality, under eighteen headings in three groups, and these I here epitomise as they direct attention to so much of practical sanitation desirable in this borough.

(A). GENERAL CONDITIONS.

1. Atmospheric temperature.—That the mortality is higher in warm weather than cold everyone recognises, but this fact seems rather due to the

2. Temperature of the earth being raised, so that the maximum diarrhœal mortality of the year is usually observed in the week in which the temperature recorded by the 4-foot earth thermometer attains its mean weekly maximum.

3. Rainfall exerts an influence, mainly it would seem, in preventing the rise, and probably to a less extent, in hastening the fall of the temperature of the earth.

4. Air movements to the extent that the more fresh and breezy the wind is in the warmer seasons, the lighter the diarrhœal mortality.

(B). CONDITIONS OF LOCALITY.

5. Elevation above the sea level has not a very remarkable or powerful influence on diarrhœal mortality, but the

6. Soil has a decided influence in so far as that of a loose nature, permeable more or less freely by water and air, is the soil in which diarrhœal mortality is apt to be high. And the presence of much organic matter in this or indeed any soil renders it distinctly more favourable.

7. Density of population.—Aggregation favours, segregation disfavours diarrhæal fatality.

8. Density of buildings (whether dwelling-houses or other) upon area, promotes diarrhœal fatality. And the same effect results from

9. Restriction of, and impediments to the free circulation of air

(*a*) About dwellings, *e.g.* too small yard space and passages in the rear of dwellings ; and these too much cut up by cross walls and out-buildings, so that the dwellings cannot be swept by the air currents.

(*b*) Within dwellings, *e.g.*, those built back-to-back where cross-ventilation is impossible, and many although front-and-back, without fire-places in bedrooms and windows unopenable. Absence of free domestic ventilation increases very greatly and very obviously, the mortality from diarrhœa. This condition is much aggravated when associated with

10. Domestic darkness and general dirtiness of dwellings. It is very much in the crowded and poor parts of towns, where these conditions prevail, that the diarrhœal mortality is highest.

11. Sewer or cespool emanations, especially in a concentrated form, and suddenly let loose may occasion attacks of fatal diarrhæa.

12. Atmospheric fouling from mere coal smoke, etc., may lower the general standard of infant health, although it appears inoperative in the causation of diarrhœa, but

13. Filthy accumulations of domestic refuse in privies, ashpits, dust-bins, etc., promote, wherever they exist, diarrhœal mortality; and especially they do so where free movement of air is impeded, and the atmospheric fouling due to them is consequently concentrated.

14. Undefined polluted conditions of drinking water have appeared to give rise to epidemic diarrhœa, irrespective of the season of the year, but it seems to have little or nothing to do in the way of direct causation of our usual summer diarrhœal mortality.

(C) CONDITIONS RELATING TO THE POPULATION.

15. Social position.—The diarrhœal fatality is comparatively small among the well-to-do portion of the community, and comparatively very great among families of the lower social grades.

16. Food of an improper kind may produce diarrhœa, not so much from its indigestibility as from the operation of some extraneous substance in the food, which substance is by itself an efficient cause of the malady.

(*a*) As to mode of feeding infants.

1st. Infants fed solely from the breast are remarkably exempt from diarrhœa.

2nd. Those fed in whatever way with artificial food to the exclusion of breast milk, suffer most heavily from fatal diarrhœa.

3rd. Those fed partially at the breast, and partially with other kinds of food, suffer to a considerable extent from fatal diarrhœa, but very much less than those who are brought up altogether by hand.

4th. The use of "the bottle" is decidedly more dangerous than artificial feeding without the use of the bottle.

(*b*) As to the circumstances of food keeping, and of its exposure to telluric emanations (*e.g.*, in underground cellars), or to emanations from accumulations of domestic filth, &c., (*e.g.*, when kept in pantries, &c., to which such emanations have more or less free access), tends to render it liable to produce diarrhœa, especially when the storing place of food is dark, and is not exposed to currents of air.

17. Maternal neglect and carelessness in infant management.—The collective experience of three places, Salford, Great Yarmouth, and Scarborough, is for all practical purposes to this effect: That infants most liable to be neglected, namely, those which are illegitimate, suffer exceptionally from all causes of infant mortality, but from diarrhœal mortality rather more than from other causes of death, and this is the more perceptable in those years the epidemic is lighter. In those years it is the heavier, the contrast is lost in the general mortality, but it is also these years this class of infants seems to suffer earlier than those better cared for.

18. Occupation of females from home.—This resolves itself mainly into the question of maternal neglect, with the substitution more or less of artificial feeding for feeding at the breast, matters which have already been mentioned in preceding paragraphs.

Dr. Ballard sums up his most instructive report with the following provisional hypothesis :—

" That the essential cause of diarrhœa resides ordinarily in the superficial layers of the earth, where it is intimately associated with the life process of some micro-organism not yet detected, captured, or isolated.

" That the vital manifestations of such organism are dependent among other things, perhaps principally, upon conditions of season and on the presence of dead organic matter which is its pabulum.

"That, on occasion, such micro-organism is capable of getting abroad from its primary habitat, the earth, and having become air-bourne, obtains opportunity for fastening on non-living organic material, and of using such organic material both as nidus and as pabulum in undergoing various phases of its life history.

"That in food, inside of as well as outside of the human body, such micro-organism finds, especially at certain seasons, nidus and pabulum convenient for its development multiplication, or evolution.

"That from food, as also from the contained organic matter of particular soils, such micro-organism can manufacture, by the chemical changes wrought therein through certain of its life processes, a substance which is a *virulent chemical poison*; and

"That this chemical substance is, in the human body, the material cause of epidemic diarrhœa.

"It will be observed that this provisional hypothesis is sufficiently elastic to include, as a common cause of diarrhœa, chemical products of bacterial life manufactured indifferently within or outside of the human body. Elasticity, to this extent, of a provisional hypothesis has been necessary for the reason that, in the present state of our knowledge, certain cases and groups of cases of diarrhœa, not distinguishable from epidemic summer diarrhœa, have now and again been found to possess the faculty of being directly communicable from person to person."

Dr. Ballard then goes on to offer Sanitary Authorities most judicious advice as to the Sanitary measures best calculated to combat the diarrhœa tendency of such districts as our own; measures dictated by a reasonable comprehension of the conditions favouring the disease, already recited, and many of which you now regard as essential to the health and comfort of the inhabitants of this Borough. He, however, lays great emphasis upon the possibility of milk being the vehicle of disease, and suggests especial care should be taken for its protection.

It may become infected at any time from that of leaving the cow's udder, to the time of its being used as food. Hence the necessity of guarding it from infection in the cow-shed, in the storing place of the dairyman, in the house of the retailer, and in the dwelling of the consumer. No milk retailer should be registered who has not a proper place outside his dwelling in which to keep his milk, a place perfectly clean, protected against ground air, and very freely ventilated.

My apologies are due to Dr. Ballard for thus mutilating his report, but as it is if the first importance you should profit by his labours, I have ventured to place before you the more salient of his conclusions in condensed form, in the hope they may the more readily secure your attention.

The houses in which zymotic deaths occurred last year are situate as under :—

Those from MEASLES—

Row 50
Caister Road
Middlegate Street
Row 122
Dene Side
Queen's Road
Louise Road (2)
Havelock Road
Grosvenor Road
Frederick Road, Gorleston
Hewett's Buildings, ,,
Trafalgar Road, ,,

TABLE OF

During the year 1889, in the Urban Sanitary District of Great

LOCALITIES, and showing also the Population of

Names of Localities adopted for the purposes of these Statistics. 1.	Population of all Ages. Census 1881. 2.	Population of all Ages. Estimated to middle of 1889. 3.	Registered Births. 4.	Mortality from all causes, at subjoined ages. At all ages. 5.	Under 1 year. 6.	1 and under 5. 7.	5 and under 15. 8.	15 and under 25. 9.	25 and under 60. 10.	60 and upwards. 11.
North District	20,612	21,397	615	428	107	35	13	19	99	155
South District	16,601	17,502	551	296	80	34	20	17	67	78
Gorleston & Southtown	9,001	10,934	431	151	62	10	4	12	31	32
Totals ..	46,214	49,833	1597	875	249	79	37	48	197	265
1888—Estimated to middle of year		49,395	1,653	1002	290	82	28	43	258	301
1887 ,, ,, ..		48,957	1,566	986	265	129	31	57	214	290
1886 ,, ,, ..		48,519	1,702	1087	348	123	25	42	221	328
1885 ,, ,, ..		48,081	1,600	915	222	102	39	46	233	273
1884 ,, ,, ..		47,640	1,683	1017	301	133	43	43	233	264
1883 ,, ,, ..		47,202	1,564	904	232	86	35	41	206	304
1882 ,, ,, ..		46,762	1,525	953	267	143	37	40	199	267
1881—Per Census		46,214	1,580	889	245	108	30	37	219	250
1880—Corrected Estimate ..		45,775	1,561	959	293	121	40	31	209	265

DEATHS.

Yarmouth, classified according to **DISEASE, AGE**, and such Localities, and the Births therein during the year.

Mortality from subjoined causes, distinguishing Deaths of Children under Five Years of age.

	Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not "spasmodic")	Whooping Cough	Cond. Fevers			Diarrhœa and Dysentery.	Cholera.	Rheumatic Fever	Erysipelas.	Pyæmia.	Puerperal Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia & Pleurisy.	Heart Disease.	Injuries.	All other Diseases
							Typhus	Enteric or Typhoid.	Other or Doubtful.												
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.
Under 5	—	5	—	1	3	1	—	1	—	18	—	0	0	—	0	—	4	23	0	5	81
5 upwds	—	1	—	0	1	0	—	9	—	3	—	1	3	—	1	—	32	24	25	15	171
Under 5	—	10	—	0	0	—	—	3	—	26	—	0	—	0	—	—	4	22	0	1	48
5 upwds	—	1	—	1	1	—	—	9	—	2	—	1	—	3	—	—	20	19	23	9	93
Under 5	—	3	—	—	—	—	—	0	—	9	—	—	—	—	0	—	2	11	0	2	45
5 upwds	—	0	—	—	—	—	—	3	—	0	—	—	—	—	1	—	7	12	6	7	43
Under 5	—	18	—	1	3	1	—	4	—	53	—	0	0	0	0	—	10	56	0	8	174
5 upwds	—	2	—	1	2	0	—	21	—	5	—	2	3	3	2	—	59	55	54	31	307
Under 5	1	1	—	1	7	11	—	0	0	65	—	0	2	—	0	—	9	55	1	5	214
5 upwds	0	0	—	1	0	0	—	19	3	6	—	2	1	—	3	—	60	108	62	35	330
Under 5	—	25	4	2	8	14	0	4	—	42	0	0	1	2	0	—	1	92	1	6	192
5 upwds	—	0	3	0	3	2	1	18	—	1	1	1	3	1	5	—	64	87	66	42	294
Under 5	—	11	14	2	5	28	—	0	0	89	—	2	1	—	0	—	2	54	1	12	250
5 upwds	—	1	4	1	0	0	—	14	1	6	—	3	4	—	2	—	54	102	49	23	352
Under 5	—	6	8	7	6	5	—	2	0	32	—	0	2	0	0	—	2	50	2	6	196
5 upwds	—	0	1	1	6	0	—	42	2	4	—	2	6	1	1	—	72	83	56	22	292
Under 5	0	31	0	10	17	19	—	0	0	62	4	0	3	—	0	—	3	66	0	1	221
5 upwds	1	3	1	4	6	0	—	18	1	2	2	5	4	—	2	—	68	70	69	24	300
Under 5	—	—	1	3	21	9	—	1	1	35	—	—	1	—	—	—	2	45	0	3	197
5 upwds	—	—	2	2	7	0	—	6	0	6	—	—	2	—	—	—	67	74	51	31	337
Under 5	—	17	6	0	4	16	—	1	—	78	—	1	0	—	0	—	5	83	0	1	198
5 upwds	—	1	1	1	2	0	—	8	—	5	—	2	11	—	4	—	57	56	59	28	308
Under 5	1	16	15	2	3	4	—	2	1	46	—	0	0	2	0	—	0	65	0	3	194
5 upwds	5	1	6	2	2	1	—	7	1	4	—	1	9	3	9	—	59	69	46	32	278
Under 5	—	3	30	3	11	14	—	1	0	89	—	0	1	—	0	—	6	58	1	5	197
5 upwds	—	1	11	5	2	0	—	6	1	9	—	4	1	—	2	—	66	70	47	34	281

Row 118
Row 120
Rainbow Corner
Hayward's Buildings
Gedge's Buildings (2)
Lancaster Road

Those from DIPTHERIA—

Row 28
Nelson Road South

That from WHOOPING COUGH—

Barrow's Walk

Those from TYPHOID—

Morley's Alley
St. Peter's Road
Ordnance Road
Old Wellington Place
Cobholm Island
Row 97
Belfort Place
Tyrolean Square
St. Paul's Terrace
Dolman Square
Northgate Street
Infectious Diseases Hospital (2*)
North Howard Street
Row 97
Row 78
Kimberley Terrace
Malakoff Place
Middlegate Street (2)
Row 137
Exmouth Road
Upper Cliff Road, Gorleston
Blackwall Reach, ,,
On board a Russian ship in the Harbour

Those from DIARRHŒA—

Row 50
Row 9
Row 136 (2)
Row 54
Row 129
Row 128 (2)
Row 132
Row 138
Row 127
Garden Lane (2)
Audley Street
Middle Market Road (2)
Row 86
Row 123
Row 34
Row 100
Row 142
Row 105
Row 122
Row 101
Row 34
Lime Kiln Walk
Say's Corner
South Star Yard

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*Of these two deaths, one patient came to the Hospital from Row 138, and the other from Wellington Place, Southtown.

Princes' Road
Stanley Terrace
North Market Road
Wellington Place
Albion Road
Caister Road (3)
Admiralty Road
King Street
Grosvenor-Road
St. James' Walk
Havelock Road
Morley's Alley
Church Plain
North Quay
Gedge's Buildings
Camden Road
Louise Road
South Quay
Tyrolean Square
Chatham Place, Cobholm
Anson Road, Southtown
Woodford Cottages, Southtown
Southtown Road
Columbia Terrace, Southtown
England's Lane, Gorleston
Nelson Road, ,,
Upper Bell's Road, ,,
Beach Road, ,,

During the latter half of last year there were four deaths from Fever in the Fleggs, and it has been recently reported in the public press that cases of Typhoid sickness exist there. Such facts as these render it absolutely imperative that very sure precautions shall be taken to prevent any befoulment of the Broads by the sewage of the villages around them.

SANITARY WORK.

NUISANCE REMOVAL.

Total number of nuisances attended to by Inspector	963
Remedied by Inspector's notice only	580
Referred to the Town Clerk for formal orders	383
(*a*) To cleanse, repair, or construct w.c's	133
(*b*) To construct new drains, to repair and cleanse old ones, and to trap and cleanse cesspools, &c.	65
(*c*) To re-construct and otherwise repair privies	49
(*d*) To concrete and otherwise repair back yards, passages, &c.	49
(*e*) To close impure drinking water wells, and to procure wholesome supply	34
(*f*) To repair cellar flaps, &c.	12
(*g*) To remove manure, cleanse premises, &c.	11
(*h*) To whitewash and purify dwellings, &c.	9
(*i*) To put up water troughing	7
(*j*) To properly construct manure bins	6
(*k*) To remove pigs and fowls	5
(*l*) To abate overcrowding, &c.	3

Several important Sanitary improvements in this Borough were undertaken or completed last year.

The appointment of an Inspector of Fish was a most important event, fraught with great good for the public health of this town and very many other places besides. The officer you selected seems to have the confidence of all parties at the Fish Wharf, and his directions are generally acted upon without recourse to magisterial order.

◆

Early in the year you determined to allow private residents living by the roads, along which your sea water mains run, to have the water laid on to their houses for baths and for flushing the house drains, at a fixed rate proportionate to the assessment. I should be very glad to see this permission largely made use of, as the generality of house drains need plentiful and frequent flushing. 'Tis not enough to rinse the usual sink slops into the private house drains, there probably to stagnate for a time, and emit noxious scents. They should be flushed onwards at once with clean water to the public sewer. However wholesome these public channels may be kept, the freedom of any house from the stench of sewage, depends in great measure upon the perfectness of its own drains, and the sewers are often blamed for stenches really arising in the private connexions between them and the dwelling houses. Obviously the flushing of the public sewers do not remedy these offences, only copious private flushing will do this. In the case of schools, hotels, and other large establishments where the present water supply is measured to them by meter, my observations apply with even greater force. Here surely it would be both economical and vastly beneficial to health that the sea water be freely used for flushing the w.c's as well as the drains.

At this point may I be allowed to suggest that your sea water mains be extended so as to flush the sewers and drains in the narrow streets and rows within the Town walls? If I mistake not, no arrangements are yet made for flushing with sea water the sewers in King Street, Charlotte Street, Howard Street, George Street, or Middlegate Street. The gullies at the ends of the rows are most unsavoury things, and however much the garbage and filth may be swept from them, and the gutters leading to them, they always look dirty and disreputable, and are more or less offensive. The sea water, if the mains were brought within reach, might, by means of a hose, be frequently used to flush these gutters and gullies, and much annoyance now arising from them would be suppressed.

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The great and urgent need for flushing the sewers in Gorleston, Southtown, and Cobholm you have already recognised, and are now completing a system of piping for a service of sea water in the principal parts of the district, similar to that in operation in Yarmouth. At Gorleston a further use might be made of the water, viz., to flush the w.c's of small cottages. In Southtown and Cobholm, situate as these hamlets are upon salt marsh land, the water in the soil is quite unfit for drinking purposes, and therefore the inhabitants must take of the Water Company. As their charge for domestic supply includes that for the w.c., the use of it for that purpose entails no additional expense. But on the high ground of Gorleston, where the springs are plentiful and the water pure, being as yet uncontaminated with soaking sewage, it would be well, with a view of protecting the spring water, to offer the inhabitants the opportunity of using the sea water, at a very cheap rate, for flushing their W.C's and drains. Many instances have occurred there of wells of good water being spoilt by soakage into them from privies or drains, which might have been avoided had efficient W.C's existed.

◆

Perhaps the most important Sanitary action you took last year, was the adoption of the Infectious Disease Notification Act. This measure, simple as it is, will mark a new era in the development of Sanitation in this country, quite equal to those marked by the Civil Registration of Birth and Deaths Act in 1837, and the Public Health Act of 1848. The notification is discovering to us a large number of cases of infectious sickness and incidentally much that is faulty in the Sanitary arrangements of dwellings. Next year, I trust I shall be able to give you a precis of the information we derive from the operation of the Act, but I may say here, the medical men of this Borough are most cordially assisting in its working, and, personally, I am grateful to them. The number of Typhoid cases reported is truly alarming, and shows plainly how widespread a very serious malady may be, and yet preserve a light mortality. Hitherto, we have only had the mortality returns as indicative of the salubrity or otherwise of this Borough, now we must be guided by the sickness, and while fevers continue to be notified, no matter how light the death rate, we cannot consider our town as thoroughly healthful.

In order to obtain precise information as to the sanitary condition of the dwellings of this town, more especially those in the crowded and poorer districts, you have recently determined upon a house-to-house inspection, and have engaged two competent men to carry this out. They are now busily occupied upon the work, and I have considerable confidence in their labour proving of immense benefit to the health of the inhabitants, those of the humbler classes especially.

Nothing in this town conduces so much to the unwholesomeness of very many of the dwellings, as the truly awful manner they are crowded together. The ingenuity with which the smallest possible space is made to accommodate a house, is indeed marvellous—space not necessarily square in area, or perpendicular in elevation. And this crowding on of habitations, is not a fault of ancient date—much of it has been done very recently—for in the olden time it was usual for all dwellings to have fore-courts, and many of them gardens even in the rows. Continually plans are allowed to this day, for the erection of cottages, within the old town in poked up places, which are certain to be, sooner or later, harbors of disease. So many human beings living and sleeping within touching distance of each other, presents a facile route for infection to travel, and of this we have ample evidence in the present Typhoid epidemic.

The new building bye laws, which prohibit this density of dwellings everywhere else in the Borough, do not operate within the town walls. Here your old building bye laws are still in force, save the fourth, which you suspended, "as to the Row district" on February 9th, 1886. This is much to be regretted and therefore I advise you to put a stop to this piling on of dwellings by resolving:—*That every new dwelling erected in the Rows shall have a front and back, pierced with windows and a door, facing in opposite directions. The front of the house shall be at a minimum distance of half its height from the buildings before it, or at least ten feet from the opposite side of the row, if placed at right angles thereto. The back of the house shall be at a similar distance from the rear boundary of the site on which it is built. If there are no cellars, all underfloor spaces shall be concreted and ventilated. The yards and passages shall be also covered with concrete.*

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As to the closing of unwholesome dwellings, we have for several years been tinkering at this business, but with the exception of the wretched old hovels formerly in Rampart Row, we have not yet made a clean sweep anywhere. Orders to close are of very little use, for while ruinous old places are allowed to remain, they are harbors for all kinds of filth, and although they may have no human inmates to poison, they contaminate the locality around them. The sites of all such places should be cleared of the rubbish and filth upon them, and it would also be really good work were you to acquire some of those in the more densely populated districts, and either pave and allow them to remain open as lungs to the neighbourhoods, or erect upon them small blocks of dwellings, suitable both in rental and accommodation for the poor people now occupying the many wretchedly unwholesome and ruinous dwellings your special inspectors will from time to time report to you.

PORT SANITARY AFFAIRS.

On the 1st January, 1890, there were upon the register, at the Great Yarmouth Custom House, 65 merchant vessels and 569 fishing vessels. But it does not follow all these vessels are using this port, and neither do those figures indicate the actual number of vessels trading or fishing here, many of which, however, are borne on the registers at other ports.

The present merchant vessels consist mainly of coasters and tugs. There are a few vessels of greater burden hailing from this port, but very rarely visit it, as they are mostly engaged in foreign trade. Iron steam ships belonging to strange or foreign ports bring us the bulk of our imports, and much of our exports, herrings especially, go away in strangers' vessels, or by rail to London and thence by steamer. For our present purpose, however, every vessel, whether native or alien, coming within our port, and on board which a crew resides, becomes an object of our care. Very little in the way of illness has been reported during the past year on board any of them.

Late in the evening of the 19th of October a Customs Officer informed me a Russian vessel, the "Selma," had just gone up the river with a man ill on board. I found the seaman dying with Typhoid, and the vessel moored abreast of Wellington Place, Southtown. The vessel thus placed was bringing infectious disease into dangerous proximity with the inhabitants of this Borough, and had the malady been Small-pox or Cholera instead of Typhoid, in all likelihood it would have spread on shore. Most assuredly the vessel should have been detained at the quarantine berth, a mile and a half down the river, from where she was then lying, and near the harbour's mouth. But it is not an easy matter now to detain a vessel there, as the Customs Officers no longer watch from their old station on Cliff Hill, quite opposite to the Harbour, but are located in a cottage on Ferry Hill, a good mile up the river, and at least half a mile above the quarantine berth. The boat with which the officers formerly boarded incoming vessels, is taken away from them, and they are practically now powerless to learn anything of the health of the crew, or to arrest the progress of a vessel up stream, until she comes to her moorings, it may be, alongside the town quay, I believe, during the time of flood tide, the Customs have an officer on Gorleston Pier, but he cannot by mere shouting to the captain, even supposing he had a sick man on board, learn the nature of the man's illness, and to detain a vessel at the quarantine berth without reasonable cause is a serious matter. It means loss to someone. Dr. Blaxell, when inspecting this port, fully appreciated the situation we find ourselves placed in, and I believe made some representation to the authorities about it. The only remedy I see is for the Customs to restore the boat to their officers, and for them to board incoming vessels at the harbour's mouth. Another sailor from the same vessel, the "Selma," was on November 1st thought to be ill of Typhoid, and removed to the Infectious Diseases Hospital. He very soon recovered, however, and returned to his ship.

On December 10th a sailor from another foreign vessel, the "Fensale," lying near the bridge, was removed to the Infectious Diseases Hospital suffering with Typhoid. He also made a good recovery. I need hardly say the cleansing and disinfecting the ship, and particularly the water casks, were most carefully carried out in the case of both vessels.

The number of fishing vessels actually at work from this port is even more difficult to tell than the number of merchantmen, because many from strange ports constantly fish from here, and a very large number of Scotch herring boats use the port during the autumn fishing, of which no official record is kept. Of our own vessels, the continued depression of the trawl fishing, has recently pushed several owners out of the trade, and consequently many smacks have been sold away from the port altogether. I have heard of no case of illness on board any of them.

There were reported at the Customs House during last year 49 deaths of fishermen at sea.

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Although you have made arrangements with the managers of the general Hospital for the use of their post-mortem room for such inspections as the Coroner may order of persons dying in private houses in the town, the want of a place at Gorleston for the reception of bodies taken out of the river, or brought in from sea, presses as hardly as ever. Many of these corpses are in an advanced stage of decomposition, and quite unfit to be received into any dwelling house, even if they are identified, and their homes known. It is usual now to place them in any warehouse or shed obtainable, but these places are in every way badly suited for such a purpose, many of them being so infested with rats that it has been necessary to suspend the body so as to keep it from them. It is absolutely necessary the Sanitary Authority should possess a well lighted and well ventilated room near the river at Gorleston, to serve as a dead house, and in which a post mortem examination could take place if required.

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And again it becomes my privilege to express my sincere thanks to you for the careful consideration you have ever given to the suggestions and advice I have had the honor of tendering you,

And am, Gentlemen,

Yours very obediently,

JOHN BATELY, M.D.,
M.O.H.